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Abstract

Modelling farmers' managerial ability shows that farmers' lessons from various forms of experience are by far the most significant factor in achieving high management skill. This begs the question of obtaining an understanding of the components making up successful experiential outcomes. To help unravel this question the results from analysing 740 farmer survey questionnaires is presented. It turns out high 'experience' is related to many factors.

Keywords: experience, managerial ability, variables.

About the Authors:

Dr Peter Nuthall is a Research Fellow in the Department of Agricultural Management and Property Studies. His particular current interest is in exploring, explaining and discovering how to improve farmers' managerial ability.

1 Introduction

Modelling farm survey data has shown farmers' 'experience' is by far the most important factor in achieving successful outcomes on modern Western country farms, and probably similarly for all other farms. The other core factors in managerial ability are intelligence and management style or personality (Muggen, 1969). Research based on some 740 farmer survey data suggests the contribution of each to managerial ability is 74% for 'experience', and 8.3% and 17.7% for intelligence and style respectively. Intelligence is only half as important as management style, which in turn is only a fraction as important as 'experience'.

But having heaps of experience does not necessarily lead to managerial ability. The important thing is actually learning from experience and mistakes to build decision constructs that work. In the modelling of the farmer data (full report in Nuthall, a&b, 2009) a structural equation model was used to not only determine the important factors in ability, but also to work out the factors associated with valuable and useful experience.

In the model the experience variable was what is known as a latent variable.... not directly observable, but able to be inferred from the structure of the model and observed variables (such as age, profit and so on). When working on improving managerial ability it is critical to consider these factors which give rise to 'high' experience.

To this end, the 740 farmers were split into a number of groups based on their level of 'good experience' which had been calculated using the model and converted to percentage scores. To provide a comparison, farmers with 'experience' rated as 80% or greater were compared with those with a less than 50% 'experience' rating. Provided below are a number of tables giving the values of a range of related variables for each 'experience' group. Only those variables where the means had a significance difference of less than 10% probability are shown... i.e. they only have a 10% or less chance of being from the same distribution.

Generally the attributes were measured on a 5 point Likert scale, though there are some exceptions. These are noted as appropriate. The mean of each variable for each 'experience' grouping is presented as is the significance probability level, and also whether a higher level of the variable is desirable to improve 'experience', and thus managerial ability. Generally a lower value is desirable for each variable as the scale went from 1 for the variable being 'true' to 5 where the farmer considered the factor is not true for him or her. To reduce space, the variable names are not the full statement offered to the farmer. The full set of questions asked is presented as an appendix in Nuthall, P.L. (b & c, 2009).

While it cannot now be changed for an existing manager, it is interesting to consider variables related to parental influences (see Table 1). If nothing else, they highlight some of the factors parents should be considering in carrying out their parental duties. Country schooling is clearly an advantage though this possibly relates to the advantages of living in a rural environment. The other factors listed make interesting reading for parents and largely involve common sense.

2 The results

Besides Table 1, the variable groupings presented in the subsequent tables include components of the processes a farmer might use, personality factors, farmer attitudes, relationships with others, learning aspects, objectives and, finally, technical productivity. The latter is more of an expression of high experience and high ability rather than a possible causing factor.

Considering all these variables gives ideas on desirable training and the factors to concentrate on when working on improving farmers' managerial ability through improving 'experience'.

Table 1 PARENTAL INFLUENCES Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Attendance at country primary school (1=yes)	1.1	1.3	0.083	yes
Encouraged to use imagination when young *	2.0	2.5	0.044	yes
Encouraged to get on with people when young*	1.6	2.4	0.025	yes
Listened to tech matters discussion when young *	2.8	3.3	0.061	yes
Wanted info. on decision reasons when young*	2.4	3.2	0.001	yes
Learnt a lot of financial knowledge from parents*	3.1	2.6	0.058	no

Table 2 PROCESSES Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Furthest travelled to field day/course(kms)	1198	150	0.041	yes
Discussions with others helpful*	2.0	2.5	0.053	yes
Write and calculate monetary consequences*	2.2	2.9	0.020	yes
Talking to others provides enthusiasm for ideas*	1.7	2.7	0.000	yes
Too much of a stickler for checking*	3.6	3.0	0.029	no
Important to reduce risk*	3.3	2.0	0.000	no
Improved my mgmt of workers and contractors*	2.3	3.1	0.002	yes
Don't change production methods*	4.0	2.8	0.000	no
Safer not to rely on others to do jobs*	2.9	2.1	0.000	no
Plan formally with paper budgets & similar*	2.3	3.0	0.008	yes
Carefully check plan changes to double check*	3.4	2.5	0.000	no
Ensure employees enjoy their jobs*	1.3	2.0	0.000	yes

Table 3 PERSONALITY FACTORS (BELIEFS/FACTORS) Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Easy to ring strangers for technical information*	2.4	3.6	0.000	yes
Become anxious with too many jobs to hand*	3.0	2.3	0.015	no
Tolerate employee/contractor mistakes*	2.4	3.1	0.007	yes
Worry at night over decisions*	3.7	3.0	0.019	no
New methods exhilarating and challenging*	1.7	2.8	0.000	yes
Worry about using the correct methods*	4.0	4.5	0.036	maybe
Happy to make do with what is to hand*	2.5	1.7	0.000	no
Having to change is a real pain*	3.7	2.5	0.000	no
Get cross and short with others*	2.9	2.4	0.074	no

It is very clear that farmers prepared to travel to attend field days tend to have high 'experience' as do farmers who talk to others about their decision problems. Similarly farmers who write down ideas and budget comparisons tend to have greater success.

Anxiety and worry are not good traits to have. Becoming less anxious can, however, be achieved through concentrating on techniques such as relaxation, and sharing the load. Again, from Table 3, talking to others in assessing situations tends to be associated with successful 'experience'. Learning to 'keep your cool' is also beneficial. Also note the 'high experience' farmers are not that concerned at reducing risk.

When it comes to attitudes, Table 4 contains data suggesting, amongst other things, having determination and a belief that good luck is made by the farmer are both valuable. Similarly, farmers that enjoy working with new approaches, and find themselves 'challenged' at times, tend to have more valuable 'experience'.

The information in Table 5 suggests it is important to get along with, and enjoy, other people, and it is certainly not a good idea to 'lose your cool'. When it comes to formal learning, Table 6 provides some clues. Attending every opportunity to learn as well as paying close attention all make a contribution. All sources of knowledge are highlighted... courses, field days, written material as well as consultants and advisors. Table 7 has data on farmers' objectives. The high experience farmers do not worry about debt, but believe having proper holidays and leisure is part of a successful life. They are also keen to minimising pollution as part of being a responsible citizen. And note they are not worried about preserving assets for the next generation, but target expanding their businesses.

Table 4 ATTITUDES Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Developing good working conditions is crucial*	1.3	2.1	0.000	yes
Enjoy experimenting with new things*	2.2	3.2	0.000	yes
Retirement planning is a major issue*	2.6	2.1	0.048	no
No alternative to carrying on farming*	4.9	3.6	0.000	no
Financial and marketing skills better than parents*	1.8	2.2	0.089	yes
Long term planning better than parents*	1.9	2.5	0.039	yes
Objectives different from parents*	2.3	3.0	0.024	yes
Objectives different from gran parents*	2.4	3.2	0.010	yes
Often challenged requiring new decisions*	1.9	2.6	0.003	yes
Managed to largely achieve goals*	1.5	2.0	0.015	yes
Luck is really good management*	1.8	2.2	0.107	yes
I find most employees work hard/do a good job*	1.8	2.3	0.011	yes
I don't have good luck compared to others*	4.3	3.6	0.004	no
Problems seldom my fault*	2.8	2.2	0.008	no
Very determined and make things happen*	1.7	2.1	0.041	yes
Management of soils/pasture/crop(10=excellent...)	7.7	6.8	0.005	yes
Management of labour/contractors(10=excellent...)	7.7	6.6	0.002	yes

Table 5 RELATIONSHIPS WITH OTHERS Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Enjoy farmer groups*	3.1	3.5	0.091	yes
Get cross and short with others*	2.9	2.4	0.074	no
Speak and involved in group meetings*	2.9	3.6	0.010	yes

Table 6 LEARNING Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Attending field days is vital*	2.6	3.7	0.000	yes
Parents had greater intelligence than me*	4.2	3.4	0.000	no
Learnt a lot of technical knowledge in education*	2.8	3.4	0.044	yes
Learnt a lot of technical knowledge from field days*	2.3	3.1	0.003	yes
Learnt a lot of technical knowledge from reading*	1.8	2.1	0.069	yes
Learnt a lot of technical knowledge from courses*	2.8	3.8	0.000	yes
Learnt a lot of tech knowledge from advisors*	2.3	3.2	0.001	yes
Learnt a lot of tech knowledge from reps*	3.0	3.6	0.009	yes
Learnt a lot of fin'c'l knowledge from field days*	3.5	4.1	0.009	yes
Learnt a lot of fin'c'l knowledge from courses*	3.2	4.0	0.002	yes
Learnt a lot of fin'c'l knowledge from advisors*	2.4	3.0	0.064	yes
Learnt a lot of fin'c'l knowledge from co. reps.*	3.6	4.1	0.034	yes

Table 7 OBJECTIVES Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Important to pass property to family*	3.5	2.8	0.042	no
Important to keep debt low*	4.3	1.4	0.000	no
Important to plan for leisure and holidays*	1.7	3.1	0.000	yes
Minimising pollution is important*	1.3	2.1	0.000	yes
Business expansion absolutely necessary*	2.9	3.8	0.001	yes
Aiming for maximum sustainable income important*	2.4	1.9	0.030	no
Assets to children for education/business important*	3.1	2.4	0.005	no

Finally, it is clear these high experience farmers are much better at achieving technical excellence (Table 8) compared with the low experience farmers. You would expect this for one of the first things associated with high managerial ability is to obtain the maximum physical output possible with the resources available. Efficiency studies make this very clear just as it is obvious logic. Being younger also helps!

Table 8 TECHNICAL FACTORS Comparison of statistics of farms with experience % >80%(41 farms) relative to farms with experience<50% (72 farms). Total sample 735 farms. Scoring scale 1=true 5=not true (shown by *)

<u>Variable</u>	<u>Mean value</u>		<u>Significance</u>	<u>Desirable</u>
	<u>High Exp</u>	<u>Low Exp</u>		
Years on current farm	19.8	27.9	0.010	
Years managing current farm	18.1	21.6	0.094	
Years working on farm before manager	5.8	8.2	0.067	
Age category with 6 options(1=<25..... 6= >65)	4.1	4.7	0.001	younger
Lambing percentage (sheep farmers only)	145	128	0.003	yes
Milk solids per hectare (dairy farmers only)	1005	814	0.052	yes
Milk solids per cow (dairy farmers only)	377	320	0.037	yes

3 Conclusion

Overall, it is important for farmers to understand the factors associated with successful experience, and similarly their advisors and consultants. Farmers need to have the attributes of ‘experts’ (Cooke, 1992; Shanteau, 1990). Most farmers will recognise the importance of learning from experience, but many do not achieve this to a desirable level. Helping change this situation can have lasting impacts in farmers achieving their goals, and similarly for the nation they are part of. In helping farmers it is also useful to understand their core values and approaches which can be assessed using standard tests (Nuthall, 2006). Working with others in close and supportive groups is probably the best way to move towards achieving the attributes associated with beneficial ‘experience’. It is highly likely an ability to be self-critical is also important. This was not measured in the survey suggesting further work on this aspect is desirable.

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